

Calculation Methods for Grain Ounce Equivalents for Preschoolers in the National School Lunch Program and School Breakfast Program

School Year 2021-22

This guidance applies only to the U.S. Department of Agriculture’s (USDA) meal patterns for preschoolers (ages 1-4) in the National School Lunch Program (NSLP), School Breakfast Program (SBP), Seamless Summer Option (SSO) of the NSLP, and Afterschool Snack Program (ASP) of the NSLP. The SSO follows the NSLP and SBP preschool meal patterns. The requirements for the preschool meal patterns are the same as the Child and Adult Care Food Program (CACFP), and are defined by the USDA’s final rule, [Child and Adult Care Food Program: Meal Pattern Revisions Related to the Healthy, Hunger-Free Kids Act of 2010](#). For a comparison of each program’s meal pattern requirements for the grains component, refer to the Connecticut State Department of Education’s (CSDE) resource, [Comparison of Meal Pattern Requirements for the Grains Component in the School Nutrition Programs](#).

For information on the preschool meal patterns and crediting foods, refer to the CSDE’s guide, [Menu Planning Guide for Preschoolers in the NSLP and SBP](#), and visit the “Grains Component for Preschoolers” section of the CSDE’s [Meal Patterns for Preschoolers in School Nutrition Programs](#) webpage.



Overview of Crediting Requirements for Grains

To credit as the grains component in the preschool meal patterns, grain products and recipes must be made with creditable grains. Creditable grains include whole grains, enriched grains, bran, and germ. **Note:** Bran and germ do not credit in the NSLP and SBP meal patterns for grades K-12.



Creditable foods for the preschool meal patterns include commercial products and standardized recipes for foods that are enriched, whole grain, or whole-grain rich (WGR). Creditable cooked and ready-to-eat (RTE) breakfast cereals include products that are enriched, whole grain, WGR, or fortified. Products that are 100 percent whole grain, such as whole-wheat bread and brown rice, provide the best nutrition and should be served most often. For information on identifying whole and enriched grains, refer to the CSDE’s resources, [Crediting Whole Grains in the NSLP and SBP](#), [Crediting Enriched Grains in the NSLP and SBP](#), and [Crediting Breakfast Cereals for Preschoolers in the NSLP and SBP](#).

The preschool meal patterns require at least one serving of WGR grains per day. The USDA’s [CACFP Best Practices](#) recommends at least two servings of WGR grains per day. WGR foods for the preschool meal patterns must contain at least 50 percent whole grains and the remaining grain ingredients must be enriched, bran, or germ. For guidance on menu planning considerations for the

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WGR requirement, refer to the CSDE's guide for the CACFP, [Meeting the Whole Grain-rich Requirement for the CACFP](#).

Note: Per USDA memo, [COVID-19: Child Nutrition Response #90: Nationwide Waiver to Allow Specific School Meal Pattern Flexibility for School Year 2021-2022](#), school food authorities (SFAs) that cannot meet the preschool WGR requirement during school year 2021-22 (through June 30, 2022) must request a waiver from the CSDE. For more information, visit the “[How To](#)” section of the CSDE's Operating Child Nutrition Programs during COVID-19 Outbreaks webpage.

Overview of Ounce Equivalents

Creditable grain products and foods made from scratch must provide the minimum quantities required by the preschool meal patterns for each meal and snack. Effective October 1, 2021, the required quantities for the preschool grains component are in ounce equivalents.

The USDA allows two methods for determining the ounce equivalents of creditable grain products and recipes. Method 1 (weight or volume) is used for commercial grain products and may also be used for standardized recipes that indicate the weight of the prepared (cooked) serving. Method 2 (creditable grains) is used for standardized recipes and may also be used for commercial grain products that have a product formulation statement (PFS) indicating the weight of creditable grains per serving.

SFAs may use either method but must document how the crediting information is determined for each grain product and recipe. Method 2 must be used for certain commercial grain products. For more information, refer to “[Choosing a Calculation Method](#)” and “[When Method 2 is Required for Commercial Products](#)” in this document.

SFAs are not required to use these methods for commercial products with a Child Nutrition (CN) label. CN-labeled products credit based on the stated crediting information for grain ounce equivalents. CN labels are available only for main dish entrees that contribute to the meat/meat alternates component, such as pizza, breaded chicken nuggets, and cheese ravioli. However, CN labeled foods usually indicate the contribution of grains, vegetables, and fruits that are part of these products. For more information, refer to the CSDE's resource, [Child Nutrition \(CN\) Labeling Program](#).

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Method 1: Weights or Volumes (USDA's Exhibit A Chart)

Method 1 uses the USDA's chart, [Exhibit A: Grain Requirements for Child Nutrition Programs](#) (Exhibit A) to determine the required weight (groups A-E) or volume (groups H-I) for the grain group where the product belongs. The required amounts for the grains component are not the same for all Child Nutrition Programs. The CSDE's resource, [Grain Ounce Equivalents for Preschoolers in the NSLP and SBP](#), lists the Exhibit A grain ounce equivalents that apply to the preschool meal patterns. Groups F and G (grain-based desserts) are not included because grain-based desserts do not credit in the preschool meal patterns.

The amount of a creditable grain food that provides 1 ounce equivalent varies because different types of foods contain different amounts of creditable grains. For example, to credit as 1 ounce equivalent of the grains component, a roll must weigh 28 grams (1 ounce), a corn muffin must weigh 34 grams (1.2 ounces), and a blueberry muffin must weigh 55 grams (2 ounces). The minimum amount that credits toward the grains component is $\frac{1}{4}$ ounce equivalent. The required preschool serving is $\frac{1}{2}$ ounce equivalent for all meals and snacks.

- **Groups A-E** include baked goods, such as crackers, animal and graham crackers, breads, rolls, taco shells, muffins, waffles, and pancakes. The amount of a food that provides 1 ounce equivalent ranges from 22 grams (0.8 ounce) for foods in group A to 69 grams (2.4 ounces) for foods in group E.
- **Group H** includes cereal grains, such as pasta, cooked breakfast cereals, and other cereal grains, e.g., amaranth, barley, buckwheat, cornmeal, corn grits, farina, kasha, millet, oats, quinoa, wheat berries, and rolled wheat. These foods require $\frac{1}{2}$ cup cooked or 28 grams (1 ounce) dry to credit as 1 ounce equivalent of the grains component. **Note:** Cereal grains typically credit based on the **cooked** serving, but menu planners may choose to credit cereal grains using the dry uncooked weight. For guidance on crediting cooked breakfast cereals, refer to the CSDE's resource, [Crediting Breakfast Cereals for Preschoolers in the NSLP and SBP](#).

Dry cereal grains used as an ingredient in a recipe (such as rolled oats in bread) require 16 grams of creditable grains to credit as 1 ounce equivalent of the grains component.

- **Group I** includes RTE cold breakfast cereals. These foods require 1 ounce (28 grams) to credit as 1 ounce equivalent of the grains component. A 1-ounce serving equals 1 cup of flaked or round cereal, $1\frac{1}{2}$ cups of puffed cereal, and $\frac{1}{4}$ cup of granola. For guidance on crediting RTE breakfast cereals, refer to the CSDE's resource, [Crediting Breakfast Cereals for Preschoolers in the NSLP and SBP](#).

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Method 1 applies to all creditable commercial grain products. This method may also be used for standardized recipes if the SFA knows the weight (grams or ounces) of the prepared (cooked) serving. For more information, refer to “[Using Method 1 \(USDA’s Exhibit A chart\)](#)” in this document.

Using Method 1 for commercial products

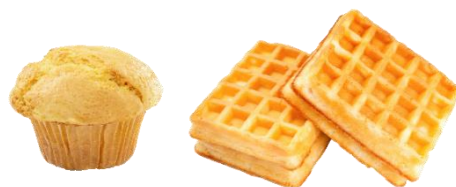
The product’s Nutrition Facts label or PFS must indicate the weight (ounces or grams) of the manufacturer’s serving. The tools below help menu planners determine the ounce equivalents contribution of creditable commercial grain products.

- **CSDE’s crediting worksheet for commercial grain products:** The CSDE’s Excel worksheet, *Child Care Worksheet 1: Crediting Commercial Grains in the CACFP*, determines if a commercial grain product meets the CACFP crediting requirements and WGR criteria, and calculates the ounce equivalents contribution of the serving.. Since the preschool meal pattern requirements are the same as the CACFP, SFAs may use this worksheet to determine if commercial grain products comply with the preschool crediting requirements
- **USDA’s Exhibit A Grains Tool:** This [online tool](#) of the USDA’s *Food Buying Guide for Child Nutrition Programs* (FBG) determines the ounce equivalents of commercial grain products. For more information, watch the USDA’s webinars, *Exhibit A Grains Tool to the Rescue* and *How to Maximize the Exhibit A Grains Tool*.

Note: For some commercial grain products, SFAs must use method 2 to determine the ounce equivalents. For more information, refer to “[When Method 2 is Required for Commercial Products](#)” in this document.

Using method 1 for foods made from scratch

SFAs must have standardized recipes on file that indicate the weight of the prepared (cooked) serving of foods made from scratch. Many standardized recipes do not list the serving weight. If the recipe does not provide this information, SFAs could determine the average weight per serving by weighing several servings of the recipe. For more information, refer to the CSDE’s *Yield Study Data Form for Child Nutrition Programs*.



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Method 2: Creditable Grains

Method 2 determines the ounce equivalents for creditable grain products and standardized recipes by calculating the total weight (grams) of creditable grains per serving. The grams of creditable grains are obtained from the commercial product's PFS or calculated from the grain quantities in the standardized recipe. To credit as 1 ounce equivalent of the grains component, foods in groups A-E of the USDA's Exhibit A chart must contain **16 grams** of creditable grains and foods in groups H-I must contain **28 grams** of creditable grains.

Using method 2 for commercial products

SFAs must obtain a PFS from the manufacturer that documents the weight of the creditable grains per serving. This information cannot be determined from the product's Nutrition Facts label or packaging.

For information on PFS forms, refer to the CSDE's resources, [Product Formulation Statements](#) and [Accepting Processed Product Documentation in the NSLP and SBP](#), and the USDA's handouts, [Product Formulation Statement for Documenting Grains in the Child Nutrition Programs](#), and [Tips for Evaluating a Manufacturer's Product Formulation Statement](#). For additional guidance on documentation for commercial products, visit the "[Crediting Commercial Processed Products in Preschool Menus](#)" section of the CSDE's Meal Patterns for Preschoolers in School Nutrition Programs webpage.

Using method 2 for foods made from scratch

Foods made from scratch must have a standardized recipe that indicates the weight of each grain ingredient. SFAs must determine the grams of creditable grains per serving from the weight of each grain ingredient listed in the standardized recipe. For assistance with recipe calculations, such as converting fractions to decimals, refer to the Institute of Child Nutrition's (ICN) [Basics at a Glance Portion Control Poster](#) and the decimal equivalents of fractions in the "[Introduction](#)" section of the USDA's FBG.

The tools below help menu planners determine the ounce equivalents contribution of creditable grain recipes.

- **CSDE's crediting worksheets for grain recipes:** The CSDE's Excel worksheets, [Child Care Worksheet 5: Crediting Quantity for Grains in the CACFP](#), determines if a quantity recipe meets the CACFP crediting requirements and WGR criteria, and calculate the ounce equivalents contribution of the serving. Since the preschool meal pattern requirements are the same as the CACFP, SFAs may use this worksheet to determine if commercial grain products comply with the preschool crediting requirements

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- **USDA’s Recipe Analysis Workbook:** Use the FBG’s online [Recipe Analysis Workbook](#) to search for ingredients, develop a standardized recipe, and determine the recipe’s meal pattern contribution per serving. To access this tool, users must create a free account on the USDA’s FBG website.

Note: If the recipe lists grain ingredients by volume (e.g., cups and quarts) instead of weight (pound and ounces), each measurement must be converted to the equivalent weight (grams). For more information, refer to “[Method 2 calculation for recipes listing the volume of grain ingredients](#)” in this document.

For additional guidance on determining the ounce equivalents of preschool recipes, refer to the USDA’s resource, [Determining Ounce Equivalents of Grains in CACFP Recipes](#), and visit the “[Crediting Foods Prepared on Site in Preschool Menus](#)” section of the CSDE’s Meal Patterns for Preschoolers in School Nutrition Programs webpage.

When Method 2 is Required for Commercial Products

SFAs may need to obtain additional information to determine the crediting information for some commercial grain products. A PFS is required for commercial products when any of the following situations apply:

- a creditable grain is not the first ingredient, but the product contains more than one creditable grain;
- a combination food that contains a grain portion is not CN labeled;
- the manufacturer claims that the product’s serving size is less than the required weight or volume in the USDA’s Exhibit A chart; or
- the product is not listed in the USDA’s Exhibit A chart.

The requirements for each situation are summarized below. The manufacturer’s PFS must indicate the weight (grams) of each creditable grain per serving and demonstrate how the product provides that amount according to the FBG or USDA’s regulations, guidance, or policies. If the manufacturer will not supply a PFS, or the PFS does not provide the appropriate documentation, the product cannot credit as the grains component in the preschool meal patterns.

SFAs must verify the accuracy of the PFS **before** including the product in reimbursable meals and snacks, and must maintain all crediting documentation on file. The CSDE will review this information during the Administrative Review of the school nutrition programs. For more information, refer to the USDA’s document, [Tips for Evaluating a Manufacturer’s Product Formulation Statement](#).

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Situation 1: Creditable grain is not the first ingredient, but the product contains more than one creditable grain

A PFS is required when a creditable grain is not the first ingredient (excluding water), but the ingredients statement for the commercial grain product (or the *grain portion* of a combination food) contains more than one creditable grain. For grain products (such as breads, rolls, muffins, and waffles), the PFS must document that the combined weight of all creditable grains is the greatest ingredient by weight. For combination foods (such as pizza, lasagna, and breaded chicken), the PFS must document that the combined weight of all creditable grains in the *grain portion* is the greatest ingredient by weight in the *grain portion*.

For example, the yellow corn flour in the product below is not a creditable grain because it is not whole grain or enriched. For this product to credit in preschool meals and snacks, the PFS must indicate that the combined weight of the creditable grains (whole-wheat flour, rolled oats, and oat bran) is more than the weight of the yellow corn flour (noncreditable grain).

- Ingredients: *Yellow corn flour*, *whole-wheat flour*, sugar, *rolled oats*, wheat gluten. Contains 2% or less of each of the following: honey, salt, *oat bran*, yeast, molasses.

Situation 2: Combination food that contains a grain portion is not CN labeled

A PFS is required when a commercial combination food that contains a grain portion is not CN labeled. Examples include pizza crust in pizza, noodles in lasagna, and baked chicken coated with breadcrumbs or crushed cereal flakes. The PFS must document that creditable grains are the greatest ingredient by weight in the grain portion.

Situation 3: Manufacturer claims serving size is less than USDA's Exhibit A chart

A PFS is required when a manufacturer claims that a commercial grain product can provide the required creditable grains using a serving that is less than the minimum weight or volume listed in the USDA's Exhibit A chart (refer to the CSDE's resource, [Grain Ounce Equivalents for Preschoolers in the NSLP and SBP](#)). An example is a manufacturer that claims a ¾-ounce whole-grain bagel credits as 1 ounce equivalent of the grains component. The product's PFS must indicate how the manufacturer obtained this crediting information based on the FBG or the USDA's regulations, guidance, or policies.

Situation 4: Product is not listed in USDA's Exhibit A chart

A PFS is required when a commercial grain product is not listed in any of the nine groups of the USDA's Exhibit A chart (refer to the CSDE's resource, [Grain Ounce Equivalents for Preschoolers in the NSLP and SBP](#)). The PFS must indicate the weight of each creditable grain and how the manufacturer obtained the product's crediting information based on the USDA's regulations, guidance, or policies.

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Choosing a Calculation Method

SFAs may choose to use either crediting method but must document which method is used for each product. For some commercial grain products, methods 1 and 2 may result in a different crediting contribution. For example, a 1-ounce bagel might credit as 1 ounce equivalent of the grains component using method 1 (USDA’s Exhibit A chart), but might credit as 1½ ounce equivalents using method 2 (creditable grains).

SFAs should use the same calculation method each time the same product is on the menu. For example, if method 2 is used to determine the crediting of a whole-grain bagel, that same bagel should always be credited using method 2. The CSDE strongly recommends choosing one calculation method for consistent crediting. This simplifies menu planning and assists SFAs with documenting compliance for the grains component.

Sample Calculations for Commercial Products

This section demonstrates how to calculate the ounce equivalents of commercial grain products using either the appropriate weight (groups A-E) or volume (groups H-I) in the USDA’s Exhibit A chart (method 1), or the weight of creditable grains per serving (method 2). SFAs may also use the CSDE or USDA tools to automatically calculate this information (refer to “[Using Method 1 for commercial products](#)” in this document).

Sample Calculations for Commercial Products in Groups A-E

Table 1 shows a sample calculation using method 1 for a commercial product in group C, whole-wheat pancakes. Table 2 shows a sample calculation for this same product using method 2. These examples show how each method can result in a different crediting contribution for the same product. For some products, methods 1 and 2 result in the same crediting contribution. SFAs may use either method but must document how the crediting information was determined (refer to “[Choosing a Calculation Method](#)” in this document).



To determine the meal pattern contribution of a commercial grain product using method 1, menu planners must use the **weight** (ounces or grams) of one serving from the product’s Nutrition Facts label or PFS. If the product lists the serving size in ounces and grams, menu planners may choose to use either one. To convert ounces to grams, multiply ounces by 28.35.

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Table 1. Using method 1 (USDA's Exhibit A chart) to calculate the ounce equivalents for commercial grain products in groups A-E ¹

Whole-wheat Pancakes

Manufacturer's serving size:

1 pancake: 1 ounce (28 grams)

Group C (USDA's Exhibit A chart):

1 ounce equivalent = 34 grams or 1.2 ounces

Ingredients: Water, whole-wheat flour, enriched flour (wheat flour, niacin, ferrous sulfate, thiamin mononitrate, riboflavin, folic acid), sugar, canola oil. Contains 2% or less of: leavening (baking soda, sodium aluminum phosphate, monocalcium phosphate), eggs, salt, buttermilk.

1. List the weight of the **manufacturer's serving** from the product's Nutrition Facts label or PFS (1 ounce = 28.35 grams).

A **1** ounce

2. List the required weight for **1 ounce equivalent** for the product's group (A-E) in the USDA's Exhibit A chart. ¹

B **1.2** ounces

3. Determine the **ounce equivalents** in one serving of the product: Divide A by B.

C **0.83** ounce equivalents per manufacturer's serving

4. Round **down** the number in C to the **nearest ¼ ounce equivalent**. For example, 1.49 and 1.27 round down to 1.25, and 1.24 rounds down to 1.

D **0.75** ounce equivalent per manufacturer's serving (rounded)

Summary of crediting information: The manufacturer's serving size (one pancake) credits as **¾ ounce equivalent** (oz eq) of the grains component. This meets or exceeds the preschool meal pattern requirement for the meals and snacks indicated below.

Participants	Preschool meal pattern for grains		
	Breakfast	Lunch	Snack
Ages 1-2	<input checked="" type="checkbox"/> ½ oz eq	<input checked="" type="checkbox"/> ½ oz eq	<input checked="" type="checkbox"/> ½ oz eq
Ages 3-4	<input checked="" type="checkbox"/> ½ oz eq	<input checked="" type="checkbox"/> ½ oz eq	<input checked="" type="checkbox"/> ½ oz eq

¹ Calculations use the weight for the appropriate grain group in the USDA's Exhibit A chart (refer to the CSDE's resource, [Grain Ounce Equivalents for Preschoolers in the NSLP and SBP](#)). Pancakes are in group C, which requires 34 grams (1.2 ounces) to credit as 1 ounce equivalent of the grains component.

Calculation Methods for Grain Ounce Equivalents for Preschoolers in the NSLP and SBP

Table 2. Using method 2 (creditable grains) to calculate the ounce equivalents for commercial grain products in groups A-E ¹

Whole-wheat Pancakes

Manufacturer's serving size:

1 pancake: 1 ounce (28 grams)

Creditable grains per serving (from product's PFS):

Whole-wheat flour: 9 grams

Enriched flour: 8 grams

Ingredients: Water, whole-wheat flour, enriched flour (wheat flour, niacin, ferrous sulfate, thiamin mononitrate, riboflavin, folic acid), sugar, canola oil. Contains 2% or less of: leavening (baking soda, sodium aluminum phosphate, monocalcium phosphate), eggs, salt, buttermilk.

1. List the **combined weight (grams)** of whole and enriched grains in one serving from the product's PFS. ¹

9 grams of whole-wheat flour +
8 grams of enriched flour =
17 grams of creditable grains

A **17** grams

2. Determine the **ounce equivalents** in one serving of the product: Divide A by 16 (1 ounce equivalent for groups A-G = **16 grams of creditable grains**).

B **1.06** ounce equivalents per
manufacturer's serving

3. Round **down** the number in B to the **nearest ¼ ounce equivalent**. For example, 1.49 and 1.27 round down to 1.25, and 1.24 rounds down to 1

C **1** ounce equivalent
per manufacturer's
serving (rounded)

Summary of crediting information: The manufacturer's serving size (one pancake) credits as **1 ounce equivalent** (oz eq) of the grains component. This meets or exceeds the preschool meal pattern requirement for the meals and snacks indicated below.

Age groups	Preschool meal pattern for grains		
	Breakfast	Lunch	Snack
Ages 1-2	<input checked="" type="checkbox"/> ½ oz eq	<input checked="" type="checkbox"/> ½ oz eq	<input checked="" type="checkbox"/> ½ oz eq
Ages 3-4	<input checked="" type="checkbox"/> ½ oz eq	<input checked="" type="checkbox"/> ½ oz eq	<input checked="" type="checkbox"/> ½ oz eq

¹ To credit a commercial product using method 2, SFAs must obtain a PFS from the manufacturer.

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Sample Calculations for Commercial Products in Group H

Table 3 shows a sample calculation using method 1 to determine the ounce equivalents for a commercial whole-grain pasta product in group H. Table 4 shows a sample calculation for this same product using method 2. Each method results in the same crediting contribution for this product.

For some products, methods 1 and 2 result in a different crediting contribution. SFAs may use either method but must document how the crediting information was determined (refer to [“Choosing a Calculation Method”](#) in this document).

Cereal grains in group H typically credit based on the **cooked** serving, i.e., $\frac{1}{2}$ cup of cooked cereal credits as 1 ounce equivalent of the grains component. However, the menu planner may choose to calculate the product’s ounce equivalents based on the **dry uncooked weight**, i.e., 1 ounce (28 grams) of dry cereal grains credits as 1 ounce equivalent of the grains component. The menu planner must determine the weight (ounces or grams) of one serving from the commercial product’s Nutrition Facts label or the manufacturer’s PFS. If the product lists the serving size in ounces and grams, the menu planner may choose to use either one.



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Table 3. Using method 1 (USDA's Exhibit A chart) to calculate the ounce equivalents for commercial grain products in group H ¹

Whole-grain Pasta

Manufacturer's serving size:

32 grams dry (½ cup cooked)

Group H (USDA's Exhibit A chart):

1 ounce equivalent = ½ cup cooked or 28 grams dry

Ingredients: Whole-grain durum wheat flour, enriched wheat flour.

1. List the weight of the **manufacturer's serving** from the product's Nutrition Facts label or PFS (1 ounce = 28.35 grams).

A	32 grams
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2. List the required uncooked (dry) weight for **1 ounce equivalent** for the product's group in the USDA's Exhibit A chart (group H). ¹

B	28 grams
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3. Determine the **ounce equivalents** in one serving of the product: Divide A by B.

C	1.14 ounce equivalents per manufacturer's serving
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4. Round **down** the number in C to the nearest ¼ **ounce equivalent**. For example, 1.49 and 1.27 round down to 1.25, and 1.24 rounds down to 1.

D	1 ounce equivalent per manufacturer's serving (rounded)
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Summary of crediting information: The manufacturer's serving size (32 grams dry) credits as **1 ounce equivalent** (oz eq) of the grains component. This meets or exceeds the preschool meal pattern requirement for the meals and snacks indicated below.

Age groups	Preschool meal pattern for grains		
	Breakfast	Lunch	Snack
Ages 1-2	☑ ½ oz eq	☑ ½ oz eq	☑ ½ oz eq
Ages 3-4	☑ ½ oz eq	☑ ½ oz eq	☑ ½ oz eq

¹ Calculations use the weight for the appropriate grain group in the USDA's Exhibit A chart (refer to the CSDE's resource, [Grain Ounce Equivalents for Preschoolers in the NSLP and SBP](#)). Pasta is in group H, which requires 28 grams dry to credit as 1 ounce equivalent of the grains component.

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Table 4. Using method 2 (creditable grains) to calculate the ounce equivalents for commercial grain products in group H

Whole-grain Pasta

Manufacturer's serving size:

32 grams dry (½ cup cooked)

Creditable grains per serving (from product's PFS):

Whole-wheat flour: 14 grams

Enriched flour: 12 grams

Ingredients: Whole-grain durum wheat flour, enriched wheat flour.

1. List the **combined weight (grams)** of whole and enriched grains in 1 ounce equivalent (½ cup) from the product's PFS (1 ounce = 28.35 grams).¹

14 grams of whole-wheat flour +

12 grams of enriched flour =

26 grams of creditable grains

A **26** grams

2. Determine the **ounce equivalents** in one serving of the product: Divide A by 28 (1 ounce equivalent = **28 grams** of creditable grains).

B **0.93** ounce equivalent per manufacturer's serving

3. Round **down** the number in B to the **nearest ¼ ounce equivalent**. For example, 1.49 and 1.27 round down to 1.25, and 1.24 rounds down to 1

C **0.75** ounce equivalent per manufacturer's serving (rounded)

Summary of crediting information: The manufacturer's serving size (½ cup cooked) credits as **1 ounce equivalent** (oz eq) of the grains component. This meets or exceeds the preschool meal pattern requirement for the meals and snacks indicated below.

Age groups	Preschool meal pattern for grains		
	Breakfast	Lunch	Snack
Ages 1-2	<input checked="" type="checkbox"/> ½ oz eq	<input checked="" type="checkbox"/> ½ oz eq	<input checked="" type="checkbox"/> ½ oz eq
Ages 3-4	<input checked="" type="checkbox"/> ½ oz eq	<input checked="" type="checkbox"/> ½ oz eq	<input checked="" type="checkbox"/> ½ oz eq

¹ To credit a commercial product using method 2, SFAs must obtain a PFS from the manufacturer.

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Sample Calculations for Foods Made from Scratch

SFAs must have standardized recipes on file to document the meal pattern contribution of grain foods made from scratch, such as breads, rolls, muffins, pizza dough, and pancakes. This section demonstrates how to calculate the ounce equivalents of standardized recipes using either the appropriate weight (groups A-E) or volume (groups H-I) in the USDA’s Exhibit A chart (method 1), or the weight of creditable grains per serving (method 2). SFAs may also use the CSDE or USDA tools to automatically calculate this information (refer to [“Using method 2 for foods made from scratch”](#) in this document).

SFAs do not need to calculate ounce equivalents for grain foods prepared from the USDA’s recipes for Child Nutrition Programs. These standardized recipes specify the meal pattern crediting information per serving. For links to the USDA’s recipes, visit the Institute of Child Nutrition’s (ICN) [Child Nutrition Recipe Box](#) and the [“Recipes”](#) section of the CSDE’s [Menu Planning for Child Nutrition Programs](#) webpage. For information on standardized recipes, visit the [“Crediting Foods Prepared on Site in Preschool Menus”](#) section of the CSDE’s [Meal Patterns for Preschoolers in School Nutrition Programs](#) webpage.

Method 2 calculation for recipes listing the weight of grain ingredients

Table 5 shows how to use method 2 to calculate the ounce equivalents for a standardized recipe that lists the weight of the grain ingredients. Foods in groups A-E must contain **16 grams** of creditable grains per recipe serving to credit as 1 ounce equivalent of the grains component. To meet the required as ½ ounce equivalent for preschoolers, the standardize serving must contain **8 grams** of creditable grains per serving



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Table 5. Using method 2 (creditable grains) to calculate the ounce equivalents for recipes listing the weight of the grain ingredients

WGR standardized recipe for multi-grain bread

Yield: 100 servings

Serving size: one piece

Grain ingredients:

Whole-wheat flour: 8 ounces (0.5 pound)

Rolled oats: 1 pound 2 ounces (1.125 pounds) ¹

Enriched flour: 1 pound

Enriched cornmeal: 8 ounces (0.5 pound) ¹

1. Determine the **total weight (pounds) of all creditable grains** in the recipe (16 ounces = 1 pound). Convert fractions to decimals, e.g., 1¾ pounds equals 1.75 pounds.

A	3.125	pounds of creditable grains
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1.625 pounds of whole grains (whole-wheat flour and rolled oats) + 1.5 pounds of enriched grains (enriched flour and enriched cornmeal) = **3.125 pounds of creditable grains**

2. Determine the **total grams of creditable grains** in the recipe: Multiply A by 453.6 (1 pound = **453.6 grams**).

B	1417.5	grams of creditable grains
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3. List the **number of servings** in the recipe (yield).

C	100	servings per recipe
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4. Determine the **grams of creditable grains** per recipe serving: Divide B by C.

D	14.175	grams of creditable grains per recipe serving
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5. Determine the **ounce equivalents** per recipe serving: Divide D by 16 (1 ounce equivalent = **16 grams** of creditable grains).

E	0.89	ounce equivalent per recipe serving
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6. Round **down** the number in E to the **nearest ¼ ounce equivalent**. For example, 1.49 and 1.27 round down to 1.25; and 1.24 rounds down to 1.

F	0.75	ounce equivalent per recipe serving (rounded)
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Summary of crediting information: The recipe's serving (one piece) credits as ¾ ounce equivalent (oz eq) of the grains component. This meets or exceeds the preschool meal pattern requirement for the meals and snacks indicated below.

Age groups	Preschool meal pattern for grains		
	Breakfast	Lunch	Snack
Ages 1-2	☑ ½ oz eq	☑ ½ oz eq	☑ ½ oz eq
Ages 3-4	☑ ½ oz eq	☑ ½ oz eq	☑ ½ oz eq

¹ Dry cereal grains used as an ingredient in a recipe (such as rolled oats and cornmeal) credit the same as groups A-E. They require 16 grams of creditable grains to credit as 1 ounce equivalent

Calculation Methods for Grain Ounce Equivalents for Preschoolers in the NSLP and SBP

Method 2 calculation for recipes listing the volume of grain ingredients

If the recipe lists grain ingredients only by volume (e.g., cups and quarts), the SFA must first convert each measurement to the equivalent **weight (grams)**. Any of the methods below may be used for this calculation.

- **Nutrition Facts label:** Use the manufacturer's serving size information on the Nutrition Facts label for the grain ingredient, such as whole-wheat flour, enriched flour, or whole-grain cornmeal. Multiply the weight (grams) of the manufacturer's serving by 4 to get the grams per cup, then multiply the grams per cup by the number of cups used in the recipe.



Nutrition Facts	
Serving Size	1/4 cup (32g)
Amount Per Serving	
Calories	110

For example, a recipe contains 2 cups of whole-wheat flour. The product's Nutrition Facts label states that 1/4 cup of whole-wheat flour weighs 32 grams. Multiply the weight of the manufacturer's serving (32 grams) by 4 to get the grams per cup (128 grams). Multiply the grams per cup (128 grams) by the number of cups used in the recipe (2 cups) to determine the total weight of the grain ingredient in the recipe (256 grams).

- **Nutrient database:** Search the USDA's [FoodData Central](#) nutrient database for grain ingredients, such as whole-wheat flour or yellow cornmeal. Enter "1" in the data field for the cup measurement, and the database will provide the weight of 1 cup of that ingredient.
- **Volume equivalent chart:** Use volume equivalent charts that list the weight of 1 cup of grain ingredients. Table 6 shows the weight per cup for some commonly used grain ingredients.
- **Yield study:** Determine the average weight of 1 cup of the grain ingredient by measuring and weighing several samples. For more information, refer to the CSDE's [Yield Study Form for Child Nutrition Programs](#).

Table 7 shows how to use method 2 to calculate the ounce equivalents for a recipe that lists the grain ingredients in cups.

Calculation Methods for Grain Ounce Equivalents for Preschoolers in the NSLP and SBP

Table 6. Weights of 1 cup of commonly used grain ingredients ¹

Food item	Weight (grams) per cup
Barley, flour or meal ²	148
Barley, hulled ²	184
Barley, pearled, uncooked ²	200
Barley, pearled, cooked ²	157
Breadcrumbs, dry, grated, plain ²	108
Breadcrumbs, plain, dry, grated, seasoned ²	120
Breadcrumbs, plain soft, white ²	45
Bulgur, uncooked ²	140
Bulgur, cooked ²	182
Cereal, General Mills Cheerios ³	28
Cereal, General Mills Corn Chex ³	31
Cereal, General Mills Rice Chex ³	27
Cereal, General Mills Wheat Chex ³	47
Cereal, General Mills Wheaties ³	36
Cereal, Kellogg's All-Bran Bran Buds ⁴	90
Cereal, Kellogg's All-Bran Original ⁴	62
Cereal, Kellogg's Corn Flakes crumbs ⁴	88
Cereal, Kellogg's Corn Flakes, whole ⁴	28
Cereal, Kellogg's Rice Krispies ⁵	26
Cereal, Quaker Puffed Rice ⁵	14
Cereal, Quaker Puffed Wheat ⁵	28
Cornmeal, enriched, uncooked, yellow, degerminated ²	157
Cornmeal, enriched, uncooked, yellow, whole grain ²	122
Cracker crumbs, graham, crushed ²	84
Cracker crumbs, snack, standard snack-type, regular, crushed ²	52

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Table 6. Weights of 1 cup of commonly used grain ingredients ¹, continued

Food item	Weight (grams) per cup
Flour, buckwheat, whole groats ²	120
Flour, corn, whole grain, yellow ²	117
Flour, rice, brown ²	158
Flour, rice, white ²	158
Flour, rye, dark ²	128
Flour, rye, light ²	102
Flour, wheat, white, all-purpose enriched, bleached ²	125
Flour, wheat, white, all-purpose enriched, unbleached ²	125
Flour, wheat, white, bread, enriched ²	137
Flour, wheat, white, cake, enriched, unsifted, dipped ²	137
Flour, wheat, white, self-rising, enriched ²	125
Flour, wheat, whole grain ²	120
Wheat germ, uncooked, plain ²	88
Wheat germ, toasted, plain ²	115
Oat bran, raw ²	94
Oat bran, cooked ²	219
Oats, rolled, quick, uncooked ²	81
Oats, rolled, regular, uncooked ²	81

¹ The use of brand-name products is solely for clarification regarding serving sizes and does not constitute approval or endorsement by the USDA or CSDE. The actual weight of 1 cup may be more or less than the weights in this chart, depending on the measuring method used, e.g., stirred or unstirred, sifted or unsifted, spooned or dipped, and coarsely or finely crushed. For the most accurate conversion of volume to weight, calculate the average weight of 1 cup of the ingredient by measuring and weighing several samples. For more information, refer to the CSDE's [Yield Study Form for Child Nutrition Programs](#).

² USDA's FoodData Central database (Standard Reference (SR) Legacy Data):

<https://fdc.nal.usda.gov/>

³ General Mills Cereals: <https://www.generalmills.com/en/Brands/Cereals>

⁴ Kellogg's Cereals: https://www.kelloggs.com/en_US/home.html

⁵ Quaker Cereals: <https://www.quakeroats.com/products>

Calculation Methods for Grain Ounce Equivalents for Preschoolers in the NSLP and SBP

Table 7. Using method 2 (creditable grains) to calculate the ounce equivalents for recipes listing the volume of grain ingredients

Multi-grain bread			
25 servings (one piece)		Convert cups to grams	
Grain ingredient	Measure	Grams per cup ¹	Weight (grams)
Whole-wheat flour	2 cups	X 120 =	240.00 grams
Rolled oats ³	$\frac{3}{4}$ cup	X 181 =	60.75 grams
All-purpose enriched flour	2 cups	X 125 =	250.00 grams
Enriched cornmeal ³	$\frac{1}{4}$ cup	X 138 =	34.50 grams
Total weight of creditable grains:			585.25 grams

1. Determine the combined weight (grams) of all creditable grains in the recipe.	A	585.25 grams
300.75 grams of whole grains (whole-wheat flour and rolled oats) + 284.5 grams of enriched grains (all-purpose enriched flour and enriched cornmeal) = 585.25 grams of creditable grains		
2. List the number of servings in the recipe.	B	25 servings per recipe
3. Determine the grams of creditable grains per serving: Divide A by B.	C	23.41 grams of creditable grains per recipe serving
4. Determine the ounce equivalents per recipe serving: Divide C by 16 (1 ounce equivalent = 16 grams of creditable grains). ²	D	1.46 ounce equivalents per recipe serving
5. Round down the number in D to the nearest $\frac{1}{4}$ ounce equivalent . For example, 1.49 and 1.27 round down to 1.25, and 1.24 rounds down to 1.	E	1.25 ounce equivalents per recipe serving (rounded)

Summary of crediting information: The recipe's serving (one piece) credits as **$1\frac{1}{4}$ ounce equivalents** (oz eq) of the grains component. This meets or exceeds the preschool meal pattern requirement for the meals and snacks indicated below.

Age groups	Preschool Meal Pattern for Grains		
	Breakfast	Lunch	Snack
Ages 1-2	<input checked="" type="checkbox"/> $\frac{1}{2}$ oz eq	<input checked="" type="checkbox"/> $\frac{1}{2}$ oz eq	<input checked="" type="checkbox"/> $\frac{1}{2}$ oz eq
Ages 3-4	<input checked="" type="checkbox"/> $\frac{1}{2}$ oz eq	<input checked="" type="checkbox"/> $\frac{1}{2}$ oz eq	<input checked="" type="checkbox"/> $\frac{1}{2}$ oz eq

¹ Grams per cup are from the USDA's [FoodData Central](#) database (Standard Reference (SR) Legacy Data).

² Dry cereal grains used as an ingredient in a recipe (such as rolled oats and cornmeal) credit the same as groups A-E. They require 16 grams of creditable grains to credit as 1 ounce equivalent

Calculation Methods for Grain Ounce Equivalents for Preschoolers in the NSLP and SBP

Resources

Accepting Processed Product Documentation in the NSLP and SBP (CSDE):

<https://portal.ct.gov/-/media/SDE/Nutrition/NSLP/Crediting/AcceptDocumentationSNP.pdf>

Basics at a Glance Portion Control Poster (Institute of Child Nutrition):

<https://theicn.org/icn-resources-a-z/basics-at-a-glance/>

Calculating Sugar Limits for Breakfast Cereals in the CACFP – Handouts in English and Spanish (USDA):

<https://www.fns.usda.gov/tn/calculating-sugar-limits-breakfast-cereals-cacfp>

Choose Breakfast Cereals that are Lower in Sugar – Handouts, training slides, and webinars in English and Spanish (USDA):

<https://www.fns.usda.gov/tn/choose-breakfast-cereals-are-lower-sugar>

Crediting Breakfast Cereals for Preschoolers in the NSLP and SBP:

<https://portal.ct.gov/-/media/SDE/Nutrition/NSLP/Crediting/CreditCerealsSNPPreschool.pdf>

Crediting Enriched Grains in the NSLP and SBP (CSDE):

<https://portal.ct.gov/-/media/SDE/Nutrition/NSLP/Crediting/CreditEnrichedGrainsSNP.pdf>

Crediting Foods in Preschool Menus (CSDE webpage):

<https://portal.ct.gov/SDE/Nutrition/Meal-Patterns-Preschoolers-in-School-Nutrition-Programs/Related-Resources#Grains>

Crediting Whole Grains in the NSLP and SBP (CSDE):

<https://portal.ct.gov/-/media/SDE/Nutrition/NSLP/Crediting/CreditWholeGrains.pdf>

Exhibit A: Grain Requirements for Child Nutrition Programs (USDA):

<https://foodbuyingguide.fns.usda.gov/Content/TablesFBG/ExhibitA.pdf>

Food Buying Guide Exhibit A Grains Tool (USDA):

<https://foodbuyingguide.fns.usda.gov/ExhibitATool/Index>

Food Buying Guide Section 4: Overview of Crediting Requirements for the Grains Component (USDA):

https://foodbuyingguide.fns.usda.gov/Content/TablesFBG/USDA_FBG_Section4_Grains.pdf

Food Buying Guide Section 4: Yield Table for Grains (USDA):

https://foodbuyingguide.fns.usda.gov/files/Reports/USDA_FBG_Section4_GrainsYieldTable.pdf

FoodData Central (USDA):

<https://fdc.nal.usda.gov/>

Calculation Methods for Grain Ounce Equivalents for Preschoolers in the NSLP and SBP

Grain Ounce Equivalents for Preschoolers in the NSLP and SBP (CSDE):

<https://portal.ct.gov/-/media/SDE/Nutrition/NSLP/Preschool/GrainOzEqSNPPreschool.pdf>

Grains Component for Preschoolers (CSDE webpage):

<https://portal.ct.gov/SDE/Nutrition/Meal-Patterns-Preschoolers-in-School-Nutrition-Programs/Related-Resources#Grains>

How to Spot Whole Grain-Rich Foods for the CACFP (USDA):

<https://www.fns.usda.gov/tn/how-spot-whole-grain-rich-foods-cacfp>

Identifying Whole Grain-rich Foods for the CACFP (USDA):

<https://www.fns.usda.gov/tn/identifying-whole-grain-rich-foods-cacfp>

Meal Patterns for Preschoolers in School Nutrition Programs (CSDE webpage):

<https://portal.ct.gov/SDE/Nutrition/Meal-Patterns-Preschoolers-in-School-Nutrition-Programs/Documents>

Meeting the Whole Grain-rich Requirement for the CACFP (CSDE):

https://portal.ct.gov/-/media/SDE/Nutrition/CACFP/Crediting/WGR_Requirement_CACFP.pdf

Menu Planning Guide for Preschoolers in the NSLP and SBP (CSDE):

<https://portal.ct.gov/-/media/SDE/Nutrition/NSLP/Preschool/MPGpreschool.pdf>

Product Formulation Statement for Documenting Grains in Child Nutrition Programs (USDA):

https://www.fns.usda.gov/sites/default/files/resource-files/PFS_Grains_Oz_Eq_Fillable_508.pdf

Product Formulation Statement for Documenting Grains in Child Nutrition Programs – Completed Sample (USDA):

https://www.fns.usda.gov/sites/default/files/resource-files/PFS_Example_Grains_Oz_Eq.pdf

Product Formulation Statements (CSDE):

<https://portal.ct.gov/-/media/SDE/Nutrition/NSLP/Crediting/PFS.pdf>

Recipe Analysis Workbook (USDA's Food Buying Guide for Child Nutrition Programs):

<https://www.fns.usda.gov/tn/food-buying-guide-interactive-web-based-tool>

Resources for the Preschool Meal Patterns (CSDE):

<https://portal.ct.gov/-/media/SDE/Nutrition/NSLP/Preschool/ResourcesPreschoolMealPattern.pdf>

Standardized Recipe Form for School Nutrition Programs (CSDE):

<https://portal.ct.gov/-/media/SDE/Nutrition/NSLP/Crediting/StandardizedRecipeSchools.docx>

Calculation Methods for Grain Ounce Equivalents for Preschoolers in the NSLP and SBP

USDA Final Rule (84 FR 50287): Delayed Implementation of Grains Ounce Equivalents in the Child and Adult Care Food Program:

<https://www.federalregister.gov/documents/2019/09/25/2019-20808/delayed-implementation-of-grains-ounce-equivalents-in-the-child-and-adult-care-food-program>

USDA Memo CACFP 09-2018: Grain Requirements in the Child and Adult Care Food Program; Questions and Answers:

<https://www.fns.usda.gov/cacfp/grain-requirements-cacfp-questions-and-answers>

USDA Memo CACFP 16-2017: Grain-Based Desserts in the Child and Adult Care Food Program:

<https://www.fns.usda.gov/cacfp/grain-based-desserts-child-and-adult-care-food-program>

USDA Memo SP 34-2019, CACFP 15-2019 and SFSP 15-2019: Crediting Coconut, Hominy, Corn Masa, and Masa Harina in the Child Nutrition Programs:

<https://www.fns.usda.gov/cn/crediting-coconut-hominy-corn-masa-and-masa-harina-child-nutrition-programs>

Yield Study Data Form for Child Nutrition Programs (CSDE):

<https://portal.ct.gov/-/media/SDE/Nutrition/NSLP/Crediting/YieldStudy.pdf>.

Calculation Methods for Grain Ounce Equivalents for Preschoolers in the NSLP and SBP



For more information, refer to the CSDE's guide, *Menu Planning Guide for Preschoolers in the NSLP, SBP, and ASP*, and visit the CSDE's *Meal Patterns for Preschoolers in School Nutrition Programs* webpage, or contact the *school nutrition programs staff* in the CSDE's Bureau of Health/Nutrition, Family Services and Adult Education, 450 Columbus Boulevard, Suite 504, Hartford, CT 06103-1841.

This document is available at <https://portal.ct.gov/-/media/SDE/Nutrition/NSLP/Crediting/GrainCalculationSNPpreschool.pdf>.

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